TRAINING PAD APPARATUS

BACKGROUND

Technical Field:

The present invention relates generally to athletic training equipment used for exercise, fitness, conditioning, and technique training. In particular, the present invention is related to the field of devices that provide a striking surface for receiving a kick or blow dealt in martial arts, boxing, or similar athletic activities.

Background:

Training pad devices have been used for years in the martial arts, boxing, and similar athletic fields. Typically, training pad devices are comprised of a striking pad and support configuration. These devices include punching bags, heavy bags, speed bags, pedestals, and others. Some provide a pad that must be held in position by a first person while a second person strikes it. Others are mounted to an immovable surface, such as a wall, floor, or ceiling, by a supporting configuration to secure the device in a relatively fixed position while being struck.

One key difficulty with conventional training pad devices is that they do not provide the ability for follow-through strikes when training. Conventional training pad devices also do not provide a consistent resistance and position and have a significant delay in rebound due to oscillations after striking. Another problem with such devices is that they take up valuable floor training space, are cumbersome and heavy, and create down time for students who must assist others to train by supporting a striking surface. Additionally, these devices can cause injuries from protruding metal or high resistance impacts. Conventional training pad devices may be suitable for particular limited purposes. However, they are not suitable for use as an advanced training aid for conditioning, fitness and technique training.

The present invention for a training pad apparatus overcomes the limitations of the prior art and provides the novel ability for follow-through striking with consistent resistance, positioning and resetting that is not achieved with current devices. In these respects, the training pad apparatus substantially

departs from the conventional concepts and designs of the prior art, and in so doing provides an apparatus that can be used an advanced training aid for conditioning, fitness and technique training.

SUMMARY

The training pad apparatus and method of the present invention provides for follow-through striking with consistent resistance, positioning and resetting. A training pad is connected to a training pad arm, that is in turn pivotally connected to a member that is fixed in position. Elongated elastic members provide a resisting force in a plane approximately orthogonal to the length of the training pad arm.

Objects, advantages and novel features, and further scope of applicability of the training pad apparatus will be set forth in part in the detailed description to follow, taken in conjunction with the accompanying drawings, and in part will become apparent to those skilled in the art upon examination of the following, or may be learned by practice. The objects and advantages of the training pad apparatus may be realized and attained by means of the instrumentalities and combinations particularly pointed out in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are incorporated into and form a part of the specification, illustrate an embodiment of the training pad apparatus and, together with the description, serve to explain the principles of the training pad apparatus and method of operation. The drawings are not to be construed as limiting the principles of the training pad apparatus.

Fig. 1 is a perspective view of the enclosure and training pad of the training pad apparatus;

Fig. 2 is an internal view of the apparatus of Fig.1;

Fig. 3 is a top view of the apparatus of Fig. 1;

Fig. 4 is a front view of the apparatus of Fig. 1;

Fig. 5 is an internal side view of the apparatus depicted in Fig. 4;

Fig. 6 is a rear view of the apparatus of Fig. 1;

Fig. 7 is a perspective, exploded view of the apparatus of Fig. 1;

Fig. 8 is a perspective view of the training pad apparatus shown with positioning poles;

Fig. 9 is an internal view of the apparatus of Fig. 8;

Fig. 10 is a front view of the apparatus of Fig. 8;

Fig. 11 is an internal side view of the apparatus depicted in Fig. 10;

Fig. 12 is a perspective, exploded view of the apparatus of Fig. 8; and

Fig. 13 is a close-up perspective view of the training pad arm and arm base of the training pad apparatus.

DESCRIPTION

Turning now descriptively to the drawings, in which similar reference numbers denote similar elements throughout the several views, the attached figures illustrate training pad apparatus **10**. Figs. 1 through 7 show training pad apparatus **10** without optional positioning poles **24**, while Figs. 8 through 12 show training pad apparatus with positioning poles **24**.

Referring to Fig. 1, a perspective view of enclosure **16**, training pad **12**, training pad arm **14**, and static wall mounts **18**, **18'** of training pad apparatus **10** are shown. Fig. 2 provides an internal view of Fig. 1. Fig. 3 provides a top view and Fig. 4 provides a front view of the apparatus of Fig. 1. Fig. 5 is an internal side view taken through **30—30** of Fig. 4. Fig. 6 provides a rear view and Fig. 7 provides an exploded view of the training pad apparatus of Fig. 1.

With combined reference to Figs. 1 through 7, training pad apparatus **10** includes training pad **12** connected to arm **14** that protrudes through opening **20** defined in a partial enclosure **16**. Training pad **12** functions as a striking target and can include, but is not limited to, a stiff elastic material covered with a layer of padding that is then covered with a protective material. For example, training pad **12** can be made of a plastic and foam combination covered with vinyl or leather. Training pad **12** can be made of different materials and in different shapes to provide different functions for training goals, such as conditioning, fitness, technique, competition and rehabilitation training, and is not limited to any particular

material or materials, sizes, or shapes. Training pad **12** can be removed and replaced as needed from pad arm **14**.

Pad arm **14** is connected to and supports training pad **12** and transfers energy received from a blow to pad **12** to elastic members within enclosure **16**. Training pad **12** and arm **14** are connected to an arm base **46** (Fig. 13) opposite training pad **12**, that is pivotally connected to enclosure **16**. Pad arm **14** is composed of a suitable material for transferring energy consistently from pad **12**, such as a rigid and sturdy material including but not limited to metal, steel, hard plastic, wood, or a composite of materials.

Enclosure **16** is a generally rectangular box having exterior and interior surfaces and is composed of a sufficiently sturdy material to structurally support the internal and external components of training pad apparatus **10** and secure the apparatus in a fixed position, such as but not limited to plastic, metal, steel, wood, or a composite material. Although enclosure **16** is shown as a box-like structure, open in the rear (Fig. 6), it will be understood that enclosures of a variety of enclosures of various shapes and dimensions could function for this purpose. Enclosure **16** secures and prevents the user from contacting the pivot assembly of training pad apparatus **10**, leaving only training pad **12** and a small segment of training pad arm **14** exposed for striking. Unlike other training devices that have unprotected metal edges and extrusions, different materials can be used to cover enclosure **16** to pad or otherwise protect the user from the exterior surface of enclosure **16**.

Training pad apparatus **10** is secured to a standard building wall or other secure surface by wall mounts **18**, which consist of a sufficiently sturdy material to mount and support the apparatus, eliminating the need for first person to support the device while a second trains. In this manner, training pad apparatus **10** does not use valuable floor space and quickly attaches to a wall without significant structural modification. Additionally, the materials making up training pad apparatus **10** preferably result in a light- weight device. Each mount **18** is fixed to enclosure **16** by attachment means **32** (Figs. 2 and 7), including but not limited to screws, nut and bolt combinations, U-bolts, eye-bolts, rivets, welding joints, a combination thereof, or any suitable attachment means. Training pad apparatus **10** is in turn secured to a wall by attachment means, such as but not limited to nuts and bolts, screws, nails, rivets, or any combination thereof, placed through mating openings **54** defined in wall mounts **18**. It will be

understood by those of skill in the art that enclosure **16** can of course be fixed directly to the wall or secure surface without wall mounts **18**, by attaching a rear surface to enclosure **16** and attaching the rear surface directly to the wall with any of the aforementioned attachment means or by mating Velcro® strips or adhesives.

Training pad apparatus **10** provides the novel ability for follow-through striking with consistent resistance, positioning and resetting that is not achieved with current devices. Training pad arm **14** connects to enclosure **16** via pivot assembly **22** having a pivotal connection member **36** and elastic members **38**, such as but not limited to elastic bands such as bungee cords, rubber bands, or springs, opposing ends of which are mounted to an internal surface of enclosure **16**. Enclosure **16** thereby secures pivot assembly **22** in a fixed position. Pivot assembly **22** is best viewed in Figs. 2, 5, 6, and 7. Advantageously, pivot assembly **22** connects pad arm **14** to enclosure **16** while allowing pad arm **14** to traverse opening **20** of enclosure **16**. Further, pad arm **14** connects to pivot assembly **22** with minimum friction for efficient transfer of energy from pad arm **14** to elastic members **38**.

Pivot frame **34**, which is either integral with or secured to enclosure **16**, supports pivotal connection member **36**. Pivot frame **34** is positioned in a location that is approximately equidistant from a bottom surface of enclosure **16** as opening **20** defined in enclosure **16**, and is parallel to opening **20**. The function of pivot frame **34** is to support pivotal connection member **36** in a position such that the plane defined by member **36** is aligned with opening **20** of enclosure **16** thereby allowing arm **14** to extend through opening **20** and pivotally connect to pivotal connection member **36**. The plane defined by member **36** is alternatively rotated ninety degrees from that depicted in the figures, so that the plane of member **36** is perpendicular to opening **20**. Pivot frame **34** can be secured to enclosure **16** by attachment means **44**, such as but not limited to bolts, screws, rivets, or other suitable attachment means that extend through mating openings defined in a surface of enclosure **16** and pivot frame **34**, or by welding. Member **36** is secured to pivot frame **34** by attachment means **42**, such as but not limited to mating locking nuts, welding joints, or other suitable attachment means. Pivotal connection member **36** can comprise a conventional U-shaped member or U-bolt, although it will be understood that the function of member **36**, which is to allow arm **14** and base **46** to pivot thereupon, could be accomplished by other

equivalent means, such as an eye-bolt, or other circular member, U-joint combination, ball and socket configuration, or pin configuration.

Training pad arm **14** extends through opening **20** defined in enclosure **16** and mates with arm base **46**, both of which are in turn pivotally connected to member **36**. Base **46** includes an opening **48** (see Fig. 13) that mates with opening **50** of arm **14** through which U-member is inserted prior to being secured to pivot frame **34**. Arm **14** is inserted into a mating opening defined in arm base **46** until openings **48** and **50** are aligned for receiving member **36**.

Opposing elongated elastic members **38** provide resistance and elasticity for absorbing energy from training pad arm **14** such that when training pad **12** is hit the pad has consistent resistance and returns quickly to a ready position. For example, elastic members **38** can, but need not necessarily, be bungee cords in the range of twelve to eighteen inches in length, 0.25 to 0.75 inches in diameter. Elastic members **38** provide a resisting force against movement of training pad arm **14** in a plane approximately orthogonal to the length of training pad arm **14**. Enclosure **16** contains mounting members **52** within for receiving opposing ends of elastic members **38** to secure ends of elastic members **38** in an approximately fixed position. The manner of mounting elastic members **38** to mounting members **52** can of course vary, but includes tying the ends to mounting members, or connecting the ends to the mounting members with attachment means.

As an alternative to elongated elastic members, each elastic member **38** can be circular in nature, in the manner of a conventional rubber band, which is stretched between opposite ends of a diameter, so that the ends are looped around mounting members **52** and the midpoints wrap around training pad arm **14** and arm base **46**. There exists a multitude of equivalent means for mounting elastic members **38** to enclosure **16**. Further, the position of mounting members **52**, tension, length, and elasticity of elastic members **38** can of course vary with the application to provide the desired resistance and energy absorption from training pad **12**.

Each elongated elastic member **38** extends, or wraps, around pad arm **14** and associated arm base **46** such that elastic member **38** absorbs energy from training pad **12** when struck. To provide resistance in a broad range of motions, two elastic members **38** are implemented. A first elastic member

38 is mounted to enclosure **16** by mounting members **52**, **52'''** located approximately on adjacent corners within enclosure **16**, while a second elastic member **38** is mounted by mounting members **52'**, **52''** located approximately on the opposite adjacent corners of enclosure **16**. Each elastic member **38** extends or wraps around a portion of the perimeter, or a side, of training pad arm **14** and arm base **46** opposite its respective mounting members, at an approximate midpoint of the elastic member. (See Fig. 2.) Alternatively, each elastic member **38** wraps around the entire perimeter of arm **14** forming a loop of the elastic member around arm **14**, then is extended on to mount opposing ends of the elastic member to its respective mounting members **52**. Thus it will be understood that the terms "extend around" or "wrapped around" are defined to mean around either a portion of the perimeter, or side, of training pad arm **14** or around the entire perimeter. In either configuration each elastic member forms an approximate V-shape with training pad arm **14** nested in the point of the "V". The V-shape defines a plane that is approximately orthogonal to the line defined by the length of the training pad arm.

As training pad **12** is struck, arm **14** traverses opening **20** defined in enclosure **16**. Opening **20** is depicted in the figures as an elongated slot allowing training pad arm **14** to move in an approximately linear back-and-forth motion (or up-and-down motion if the training pad apparatus is mounted ninety degrees from what is shown in the figures). The limitation on training pad arm motion provided by the dimensions of opening **20**, as depicted in the figures, increases the speed at which pad arm **14** returns to a prestrike position. However, opening **20** can be of different dimensions, for example, having width approximately equal to the length, so that training pad arm **14** can pivot, or swivel, in a greater range of angles, from back-and-forth to up-and-down if desired.

Turning to Figs. 8 through 12, training pad apparatus **10** is shown with optional positioning poles **24**, **24'**. A perspective view of training pad apparatus **10** with optional positioning poles **24**, **24'** is shown by Fig. 8. Fig. 9 provides an internal view of the apparatus of Fig. 8. Fig. 10 is a front view of Fig. 8, while Fig. 11 provides an internal side view through **40—40** of Fig. 10. Fig. 12 provides an exploded view of the apparatus of Fig. 8.

Positioning poles **24** extend in a parallel manner through mating openings **26** in enclosure **16** (see Fig. 9) and provide a means for adjusting the position of training pad **12** along the length of

positioning poles **24**. In this embodiment, wall mounts **18** are not fixed to enclosure **16**, but instead are fixed to poles **24**. Opposing ends of positioning poles **24** are fixed to wall mounts **18**, **18'** and extend approximately orthogonally therefrom. It will be understood by those of skill in the art that the length of poles **24** can vary according to the application. Optionally, poles **24** are segmented or telescopically constructed. Positioning poles **24**, **24'** and wall mounts **18**, **18'** are of a sufficiently sturdy material, such as but not limited to steel or metal, to support enclosure **16**.

Referring to Fig. 12, enclosure **16** is held fixed at a selected position along the length of poles **24** by positioner **28**. Enclosure **16** is slidably engaged with positioning poles **24** that extend through mating openings **26** defined in enclosure **16**. Positioner **28** can include but is not limited to a T-pin or T-pin assembly inserted through mating openings located along poles **24**, a vice assembly or knob assembly, sufficient to fix enclosure **16** at a selected vertical position along poles **24**. It will be understood that there exists a multitude of equivalent means for positioning enclosure **16** along poles **24** including but not limited to holes and associated pins, indentations, and other friction-type means for setting and releasing enclosure position.

The method of operation of training pad apparatus **10** is now described. Enclosure **16** is connected to a building wall by wall mounts **18**, eliminating the need for another person to support the device. If optional positioning poles **24** are used, the height of training pad **12** can be quickly and easily adjusted. After securing training pad apparatus **10** to a wall, the user begins training using training pad **12** as the target. As the user initially strikes training pad **12**, pad arm **14** and elastic members **38** provide resistance. As the users continues to follow through with the strike and overcomes the resistance of elastic members **38**, pad arm **14** begins to move in the direction of the follow-through of the strike allowing training pad **12** to move off to the side with a consistent force of resistance. After the strike is completed the elasticity of elastic members **38** force pad arm **14** back to its original, or approximately center, position. Training pad **12** is thus reset for another strike. There is limited oscillation during reset as elastic members **38** resist the reverse motion of pad arm **14** when returning to center. Therefore, the user can quickly perform the same strike or a combination of repeated strikes.

The resistance provided by elastic members **38** is consistent, in contrast to devices requiring another person to support a striking pad. Other particularly heavy training devices do not give way properly for side strikes and may cause injury or bad training habits to avoid injuries. There is significantly less chance for injury with the flow through motion of training pad apparatus **10**.

With respect to the above description then, it is to be realized that the optimum dimensional relationships for the parts of the training pad apparatus **10**, including variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the invention. Although the training pad apparatus has been described in detail with reference to these embodiments, other embodiments can achieve the same results. The appended claims are intended to cover all such modifications and equivalents.